



National Aeronautics and
Space Administration

Principal Center for Regulatory Risk Analysis and Communication

REGULATORY SUMMARY

Final Rule

Mandatory Greenhouse Gases (GHG) Reporting Rule

This information was prepared by NASA's Principal Center for Regulatory Risk Analysis and Communication (RRAC PC). If you have further questions or need assistance with this matter, please contact the RRAC PC Manager, Sharon Scroggins (256-544-7932, sharon.scroggins@nasa.gov).

Introduction

On 22 September 2009, the U.S. Environmental Protection Agency (EPA) [announced](#) the availability of a pre-publication version of the [preamble](#) and [final rule](#) text for mandatory reporting of greenhouse gas (GHG) emissions from relatively large sources in the United States, as required by the [Fiscal Year \(FY\) 2008 Consolidated Appropriations Act](#). This Act, which was signed on 26 December 2007, authorized EPA to develop and publish a final rule for GHG reporting not later than 18 months after the date of enactment. On 10 April 2009 ([74 FR 16448](#)), EPA proposed the GHG reporting rule. EPA held two public hearings and received approximately 16,800 written public comments. The public comment period ended on 9 June 2009.

The purpose of this rule is to address GHG emissions and climate change under the Clean Air Act (CAA) and to collect accurate and comprehensive emissions data to inform future policy decisions. Potential future CAA and other climate policies include research and development initiatives, economic incentives, new or expanded voluntary programs, adaptation strategies, emission standards, carbon taxes, and cap-and-trade programs. The rule does not require the control of GHGs; rather, it requires that sources above certain threshold levels monitor and report GHG emissions.

This action includes final reporting requirements for 31 of the 42 emission sources listed in the proposal. At this time, EPA is not finalizing the remaining source categories as the agency further considers comments and monitoring and record-keeping methodologies.

Summary of the Rule

- **GHGs:** The rule will require reporting of annual emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and other fluorinated gases (such as nitrogen trifluoride and hydrofluoroethers [HFEs])
- **Affected Facilities:** The rule will apply to certain types of downstream facilities (listed in the rule) that emit GHGs, upstream suppliers of fossil fuels and industrial GHGs, and manufacturers of vehicles and engines.

- **Level of Reporting:** GHG emissions will be reported at the facility level for most source categories; except for certain importers of fossil fuels and industrial GHGs and manufacturers of vehicles and engines, which will report at the corporate level.
- **Threshold:** The thresholds listed in 40 *Code of Federal Regulations* (CFR) Part 98, Subpart A, fall into three groups: capacity, emissions, or “all in.” The thresholds developed are generally equivalent to a threshold of 25,000 metric tons of CO₂ equivalent (CO₂e) per year of actual emissions. Facilities that meet or exceed this threshold will report all source categories for which there are methods in the rule. Generally, facilities that emit fewer than 25,000 metric tons of CO₂e per year will not be required to report emissions.
- **Methodology:** The general monitoring approach will be a combination of direct measurement (particularly where facilities are already collecting and reporting such information) and facility-specific GHG calculations.
- **Frequency:** All affected facilities will have to submit annual GHG emission reports. However, facilities already reporting similar data more frequently to other mandatory programs (such as the Acid Rain Program [ARP]) will continue their current practices, and also will submit annual GHG emission reports under this rule.
- **Verification:** Those reporting will self-certify emissions data and other specified activity data and submit these to EPA, which is consistent with other CAA programs. Third-party verification is not required. EPA would then review the data to verify that the GHG emission reports are complete, accurate, and meet the reporting requirements of this rule.

Rulemaking Approach

Reporting methods for the rule rely extensively on information gathered in the review of existing reporting programs and guidance documents such as the U.S. Department of Energy’s (DoE’s) 1605b; EPA’s ARP; GHG programs in states such as California, New Mexico, and New Jersey; and international activities, including the Intergovernmental Panel on Climate Change (IPCC) and the European Union’s Emissions Trading System.

EPA applied screening criteria to identify source categories to be included in the rule. After applying the screening criteria, EPA developed reporting methodologies for emissions source categories found at the types of facilities listed in Exhibit 1.

EXHIBIT 1
Source Categories Coverage

Sector	Reporters
Upstream Sources	<ul style="list-style-type: none"> • Suppliers of Coal-based Liquid Fuels • Suppliers of Petroleum Products • Suppliers of Natural Gas and Natural Gas Liquids • Suppliers of Industrial GHGs • Suppliers of Carbon Dioxide (CO₂)

Sector	Reporters
Downstream Sources	<ul style="list-style-type: none"> • General Stationary Fuel Combustion Sources • Electricity Generation • Adipic Acid Production • Aluminum Production • Ammonia Manufacturing • Cement Production • Ferroalloy Production • Glass Production • HCFC-22 Production and HFC-23 Destruction • Hydrogen Production • Iron and Steel Production • Lead Production • Lime Manufacturing • Miscellaneous Uses of Carbonates • Nitric Acid Production • Petrochemical Production • Petroleum Refineries • Phosphoric Acid Production • Pulp and Paper Manufacturing • Silicon Carbide Production • Soda Ash Manufacturing • Titanium Dioxide Production • Zinc Production • Municipal Solid Waste Landfills • Manure Management • Suppliers of Coal-based Liquid Fuels • Suppliers of Petroleum Products • Suppliers of Natural Gas and Natural Gas Liquids • Suppliers of Industrial GHGs • Suppliers of CO₂
Mobile Sources	Vehicles and engines outside of the light-duty sector

Summary of General Requirements

These requirements apply to all source categories in the rule with the exception of mobile sources. In addition to these [general requirements](#), the rule specifies the threshold, monitoring methods, missing data procedures, and reporting and record-keeping requirements for each of source categories listed under Exhibit 1.

Schedule for Reporting

Reports will be submitted annually. Facilities and suppliers will begin collecting data on 1 January 2010. The first emissions report will be due on 31 March 2011. This report will include emissions during calendar year 2010, except for the emissions of vehicle and engine manufacturers, who will begin reporting CO₂ for model year (MY) 2011 and other GHGs in subsequent model years as part of existing EPA certification programs. For new facilities that begin operation after 1 January 2010, monitoring will begin with the first month that the facility is operating and end on 31 December of that same calendar year. Each subsequent monitoring year will begin on 1 January and end on 31 December. Facilities with electrical generating units (EGUs) that are subject to the ARP will continue to report CO₂ mass emissions on a quarterly basis, as required by the ARP, in addition to providing the annual GHG emissions reports under this rule.

Emissions Information to Report

Reports will include total annual GHG emissions in metric tons of CO₂e aggregated for the rule's source categories and for the supply categories for which emission calculation methods are provided in Part 98. The report also will separately present annual mass GHG emissions for each source category and supply category, by gas. For facilities containing only general stationary fuel combustion sources, reporters may submit an abbreviated GHG report for 2010 emissions that includes total facility GHG emissions aggregated for all stationary combustion units expressed in metric tons of CO₂, CH₄, N₂O, and CO₂e. Vehicle and engine manufacturers will be required to report emissions from the vehicles and engines they produce, generally in terms of an emission rate. Within a given source category, the report also will break out emissions at the level required by the respective subpart. For example, reporting could be required for each individual unit for some source categories and for each process line for other source categories. In addition to GHG emissions, facilities and suppliers will report certain activity data, such as fuel use and feedstock inputs, that were used to generate the emissions data. For some source categories, additional data will be reported to support quality assurance/quality control (QA/QC) and verification.

Report Submission

The reports will be submitted electronically in a format that will be developed prior to the first reporting date. To the extent practicable, EPA plans to adapt existing facility reporting programs to accept GHG emissions data. EPA is developing a new electronic data reporting system for source categories or suppliers for which it is not feasible to use existing reporting mechanisms. Each report will contain a signed certification by a designated representative of the facility.

Recordkeeping

Each facility or supplier will be required to retain and make available to EPA upon request the following records for 3 years in an electronic or hard-copy format, as appropriate:

- A list of all units, operations, processes, and activities for which GHG emissions are calculated
- The data used to calculate the GHG emissions for each unit, operation, process, and activity, categorized by fuel or material type, including the following:
 - Analytical results for the development of site-specific emissions factors
 - GHG emissions calculations and methods used
 - Results of all required analyses for high heat value, carbon content, or other required fuel or feedstock parameters
 - Any facility operating data or process information used for the GHG emissions
- Annual GHG Reports
- Missing data computations
- A written GHG monitoring plan
- The results of all required certification and QA tests of continuous emissions monitoring system (CEMS), fuel flowmeters, and other instrumentation used to provide data for the GHGs reported
- Maintenance records for all CEMS, flowmeters, and other instrumentation used to provide data for the GHGs reported
- Other data specified in applicable subparts of 40 CFR Part 98. Examples of such data could include the results of sampling and analysis procedures required by the subparts (such as fuel heat content, carbon content of raw materials, and flow rate) and other data used to calculate emissions.

Requirements for Mobile Sources

- The rule will expand the existing emission reporting requirements for mobile sources to include CO₂, CH₄, N₂O, and HFCs for new vehicles and engines. N₂O reporting is only required for engines that use nitrogen oxide (NO_x) exhaust after-treatment technology.
- Manufacturers will report annually, at the time of current annual certification.
- Small-volume manufacturers (as defined in 40 CFR 86.410) and small-volume engine manufacturers (as defined in 40 CFR 1039.801) are exempted from the GHG reporting requirements.
- The final rule does not include reporting requirements for mobile source fleet operators or state and local governments.

- Manufacturers of light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles are not subject to this rule because EPA expects to establish a comprehensive light-duty GHG emission control program beginning in 2012.
- The final rule has more flexibility in CH₄ and N₂O emissions calculation requirements.

Compliance and Enforcement

Compliance Assistance

To facilitate implementation and compliance, EPA has developed a suite of information and training resources, including the following:

- An [on-line applicability tool](#) that will assist potential reporters to assess if they meet the threshold for reporting
- A series of [webinars](#) on the reporting requirements of the rule
- A variety of guidance documents for different audiences
- [Information sheets](#) about the reporting requirements for each of the covered sectors
- A [comprehensive website](#) with information about upcoming training opportunities, along with the available information on this website

EPA also expects to implement a compliance assistance e-mail and telephone hotline or a web-based compliance assistance center for answering questions and providing technical assistance.

Role of the States

Currently, EPA does not intend to formally delegate implementation of the rule to state and local agencies. If a state would like the authority to enforce this rule, then the state may adopt the provisions of this GHG reporting rule into state laws or regulations by reference. This would make the provisions enforceable as a matter of state law that could be enforced in a state court.

Enforcement

Facilities that fail to comply with the requirements of the rule potentially could be subject to enforcement actions by EPA that include administrative, civil, and criminal penalties of up to \$37,500 per day. Deviations from the rule that could be considered violations include, but are not limited to, the following:

- Failure to report GHG emissions
- Failure to collect data needed to estimate GHG emissions
- Failure to continuously monitor and test as required
- Failure to keep records needed to verify GHG emissions estimates
- Failure to estimate GHG emissions according to the methodology(s) specified in the rule
- Falsification of reports

Amendments to Existing CFR Parts

The Mandatory GHG Reporting Rule will be codified at 40 CFR Part 98. In addition, EPA has amended the following 40 CFR Parts listed in Exhibit 2.

EXHIBIT 2

Amendments to Existing CFR Parts

40 CFR Part	Heading
86	Control of Emissions from New and In-use Highway Vehicles and Engines
87	Control of Air Pollution from Aircraft and Aircraft Engines
89	Control of Emissions from New and In-use Nonroad Compression-Ignition Engines
90	Control of Emissions from Nonroad Spark-Ignition Engines at or Below 19 Kilowatts
94	Control of Emissions from Marine Compression-Ignition Engines
1033	Control of Emissions from Locomotives
1039	Control of Emissions from New and In-use Nonroad Compression-Ignition Engines
1042	Control of Emissions from New and In-use Marine Compression-Ignition Engines and Vessels
1045	Control of Emissions from Spark-Ignition Propulsion Marine Engines and Vessels
1048	Control of Emissions from New, Large Nonroad Spark-Ignition Engines
1051	Control of Emissions from Recreational Engines and Vehicles
1054	Control of Emissions from New, Small Nonroad Spark-Ignition Engines and Equipment
1065	Engine-Testing Procedures

Major Changes from Proposed Rule

Applicability

The following source categories were not included in the final rule because EPA is still reviewing public comments and other information before finalizing these subparts:

- Electronics manufacturing
- Ethanol production
- Fluorinated GHG production
- Food processing
- Magnesium production
- Oil and natural gas systems
- Sulfur hexafluoride (SF₆) from electrical equipment
- Underground coal mines
- Industrial landfills
- Wastewater treatment
- Suppliers of coal

Exemption

EPA excluded research and development (R&D) activities from reporting. The exclusion applies to each individual R&D activity that meets the R&D definition, not to an entire facility as a whole. Pilot plants are not included in the definition of R&D.

Exiting the Program

The final rule allows facilities and suppliers whose emissions drop below the threshold of 25,000 metric tons/year of CO₂e and stay below the threshold for five consecutive years to stop reporting. Facilities also can be exempt if they show emissions below 15,000 metric tons/year of CO₂e for three consecutive years or that the emissions source has shut down entirely. In any of these cases, the sources will be required to resume reporting if emissions increase above 25,000 metric tons/year of CO₂e again.

Measuring Devices

EPA added a provision that allows the use of “best available” monitoring methods in lieu of the required monitoring methods for January - March 2010 for any parameter for which it is not reasonably feasible to acquire, install, and operate a required piece of monitoring equipment by 1 January 2010. Facilities who are submitting a report for the first time can request a date extension beyond March 2010, but EPA will not approve any requests for an extension beyond 2010.

Monitoring Equipment

In several subparts, EPA added monitoring options, changed monitoring locations, or allowed engineering calculations to reduce the need for installing new monitors.

Quality Assurance

Calibration requirements for flowmeters and other monitoring devices have been added, including a 5-percent accuracy specification.

Records Retention

The general records retention period was changed from 5 years to 3 years for most records.

Report Revision

EPA added a provision to require submittal of revised annual GHG reports, if needed, to correct errors.

Sampling Frequency

For fuel combustion and some other source categories, the mandatory monthly fuel sampling and analysis requirements have been dropped for many fuels, particularly those that are homogeneous or that are delivered in shipments or lots.

Verification

In several subparts, EPA requires more data to be reported rather than kept as records to allow EPA to verify reported emissions.

Combustion Sources

- Exemptions for unconventional fuels (such as naphtha, natural gasoline, aviation gasoline, motor gasoline, and kerosene-type jet fuel), flares, hazardous wastes, and emergency equipment were added.
- The need for mass flow monitors for some units or fuels was reduced.
- The limit of 250 million British thermal units per hour (mmBtu/hr) total heat input for aggregating units into groups for reporting purposes was lifted. The final rule allows grouping of any units that individually are less than 250 mmBtu/hr heat input.
- Units less than 250 mmBtu/hr heat input are required to report GHG emissions only for fuels for which EPA has provided default emission factors in the rule.
- Units larger than 250 mmBtu/hr heat input GHG that combust miscellaneous, non-traditional fuels such as refinery gas, process gas, vent gases, waste liquids, and others must report only if CEMS are used or if these fuels contribute 10 percent or more of the annual unit heat input to the unit. Therefore, devices such as thermal oxidizers, pollution control devices, fume incinerators, burnout furnaces, and other such equipment will report only GHG emissions from the firing of supplemental fossil fuels.

Applicability to NASA

This Mandatory GHG Reporting Rule will apply to NASA Centers, as well as to contractor and vendor facilities, that meet the threshold requirements listed in 40 CFR Part 98, Subpart A. NASA stakeholders are advised to review this rule to identify potential adverse impacts, and should note that it does not include a specific exemption for space vehicle-related operations. Potential sources of emissions that would need to be reported include boilers and generators.